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IL0 005 104 781

Med-446
9/20/90

US EPA RECORDS CENTER REGION 5

946617

CERCLA

Preliminary Assessment Report

6311



Illinois Environmental
Protection Agency
P.O. Box 19276,
Springfield, IL 62794-9276

8/20/97
J.P.

EXECUTIVE SUMMARY

A.E. Staley's on-site landfill was first placed on CERCLIS (Comprehensive Environmental Response Compensation and Liability Information System) the week of August 6, 1990, due to a request from the Illinois Environmental Protection Agency (IEPA) asking for investigatory action. There is a concern about the uncertain nature of the waste deposited in the landfill in that the potential to adversely affect local groundwater quality exists.

A.E. Staley Manufacturing Co. is located at 2200 East Eldorado, Decatur, Illinois. In the past, the IEPA has investigated alleged violations pertaining to Staley. This Preliminary Assessment is in regards to an inactive landfill situated on A.E. Staley Manufacturing Co. property, lying north of East William Street Road (Illinois Route 105). The landfill consists of a approximately 40 acres. This landfill can be found in the SE 1/4, SW 1/4, Section 7, T.16N., R.3E. of the 3rd PM, the NE 1/4, NW 1/4, and part of the NW 1/4, NE 1/4, Section 18, T.16N., R.3E. of the 3rd PM in Macon County.

The following is a description of nearby land uses. On Staley property to the west of the landfill lies the A.E. Staley industrial complex and a reservoir. An Illinois State Highway and a sparsely populated forested and wetlands area lie south of the landfill. To the east is a single family residential area and to the north is the Norfolk and Western Railroad system and agricultural lands. On June 29, 1990, during a reconnaissance visit, several private wells were noted in this vicinity.

A.E. Staley was incorporated in 1906 and moved to Decatur, Illinois in 1909. The company operated under Staley ownership from the time of its

incorporation until June of 1988 when the company and its assets were purchased by Tate & Lyle, PLC, of London.

Staley is a large corn refiner. The facility produces starches, sweeteners, ethanol, animal feeds, food ingredients and corn oil. The company's corporate headquarters are located in Decatur, Illinois. Staley's property in Decatur consists of 151 buildings on a 400-acre complex. The company's annual sales total is greater than \$1 billion. The corporate headquarters employ about 2,600 people.

A.E. Staley Manufacturing Company began operation of the landfill in the early 1950's. The waste landfilled included such materials as office and general plant trash, concrete, wood pallets, floor and tile sweepings and process wastes that include starch, feed, humin press cake and filteraid. Closure of the site began in 1984. The closure method was carried out with the intent to diminish the need for future upkeep. The areas of the site that had been used for waste disposal were covered with no less than two feet of compacted earth. Also, the landfill was contoured to minimize soil erosion and allow for drainage in the attempt to preclude static water or potential leachate problems.

In September of 1985, before the landfill had been completely closed, wastes from a pilot project were disposed of on-site. The purpose of the pilot project was to create a non-ionic surfactant that was entirely biodegradable. This was attempted by reacting a blend of palm oil and corn sugar with butanol to obtain a medium. Next the butanol was replaced with fatty alcohols (Neodol). When the project was just starting, ethanol was used instead of butanol.

Originally, the waste from this project was kept on-site with the intent of recycling. However, it was determined that because it was essential to have a simultaneous distillation capacity, the reclamation of the waste material would conflict with development of the surfactant process. The waste was placed in approximately 504 55-gallon drums that were left sitting on-site for more than 2 years. Disposal of the drummed waste commenced in the summer of 1985. The free liquid material from the drums was pumped into a railroad tank car. Two hundred ninety-six drums were pumped empty and steamed. The following shows the analysis of approximately 50 sampled drums (prior to decanting):

Fatty Alcohols (C ₁₀₋₁₃)	33.6%
Isopar G (purified Kerosene)	13.45
Methanol	1.71
Butanol	.31
H ₂ O	40.3
Starch and Surfactant (by difference)	<u>10.63</u>
	100.0%

Three-fourths of these drums had a flash point less than 140°, thus considering them ignitable.

In the 208 drums that remained, there was a 2 to 8 inch solid residue in the bottom that could not be removed. Dr. Hagenbach, of Staley, estimated there was about 2,000 gallons of waste residue in the drums. These drums were landfilled in the summer of 1985 at Staley's on-site landfill. Staley thought the residue in the drums consisted of fatty alcohols, unreacted starch, glucosides and dextrose. It was assumed the waste was non-hazardous. However, it is questionable that the above compounds were the only constituents making up the residue.

On October 24, 1985, Richard Johnson, of the IEPA, was presented a list of chemicals given to him by union members employed by Staley. They believed the list would represent some of the chemicals that might be present in the drums. Some of these chemicals include Neodol, 2-ethylhexanol, acetic acid, ethylene glycol, caustic potash, sodium acetate anhydrous, toluenesulfonic acid (pTSA) and isopar. Still other chemicals the union members assumed would not be found in the drums but bothered to list include butanol, propylene oxide, perchloroethylene, acetone, sodium hydroxide, sulfuric acid and hydrochloric acid. There presently is no known analysis of the materials housed in the drums that were landfilled.

The geology of the area consists of a top layer of loam then yellow and blue clay to approximately 25 feet deep, yellow sand from 25 to 30 feet, clay 30 to 42 feet and sands and gravels 42 to 85 feet deep. Down to approximately 750 feet lies the Pennsylvanian system which is topped by unconsolidated glacial deposits, alluvium and wind-blown silt. According to Groundwater Resources of the Buried Mahomet Bedrock Valley, this area tends to be permeable, making good aquifers and thus having a greater potential for groundwater contamination.

The potential for surface water contamination is also present. The reservoir that lies west of the Staley landfill has a small creek running from it to lake Decatur. There are no water intakes at the outlet of the creek into the lake, but this area is used for recreational purposes. There is a public water intake that lies less than three miles southwest of this point.

There appears to be minimal potential for direct contact. The drums of concern have been buried. Access is very limited to the landfill due to a fence with barbed wire that surrounds the facility.

Although Staley believed the drums buried in the summer of 1985 contained non-hazardous materials, it is questionable when the list of chemicals from the union members is taken into consideration. Based on this list and the potential for groundwater and surface water contamination, a medium priority is assigned and further action is recommended.

SM:kja:2727n/48-52



1150150032

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

IL D005104781

II. SITE NAME AND LOCATION

01 SITE NAME (legal, common, or descriptive name of site)

A.E. Staley Manufacturing Company

02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER

2200 E. Eldorado

03 CITY

Decatur

04 STATE

IL

05 ZIP CODE

62525

06 COUNTY

Macon

07 COUNTY CODE

115

08 CONG DIST

IL21

09 COORDINATES LATITUDE

39 54 05

LONGITUDE

088 54 43

Decatur, IL 7.5 minute quad (155c)

10 DIRECTIONS TO SITE (starting from nearest public road)

From I-72 take Rt. 51 South to Eldorado & go east approximately 1 1/2 miles. The site will be on the North side of E. Eldorado.

III. RESPONSIBLE PARTIES

01 OWNER (if known)

Tate & Lyle; A.E. Staley Manufacturing

02 STREET (business, mailing, residential)

2200 E. Eldorado

03 CITY

Decatur

04 STATE

IL

05 ZIP CODE

62525

06 TELEPHONE NUMBER

1271423-4411

07 OPERATOR (if known and different from owner)

08 STREET (business, mailing, residential)

09 CITY

10 STATE

11 ZIP CODE

12 TELEPHONE NUMBER

()

13 TYPE OF OWNERSHIP (check one)

☒ A. PRIVATE ☐ B. FEDERAL

(Agency name)

☐ C. STATE☐ D. COUNTY☐ E. MUNICIPAL☐ F. OTHER

(Specify)

☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (check if not apply)

☐ A. RCRA 3001 DATE RECEIVED

MONTH DAY YEAR

☐ B. UNCONTROLLED WASTE SITE (RCRA 104) DATE RECEIVED

MONTH DAY YEAR

☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES☐ NO

DATE

11, 15, 85

MONTH DAY YEAR

BY (check if not apply)

☒ A. EPA☐ B. EPA CONTRACTOR☐ C. STATE☐ D. OTHER CONTRACTOR☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER

(Specify)

CONTRACTOR NAME(S):

02 SITE STATUS (check one)

☐ A. ACTIVE☐ B. INACTIVE☐ C. UNKNOWN

03 YEARS OF OPERATION

Early 1950's

1985

☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Organic chemicals (toxicity, persistence, possibly ignitable)
Acids (toxicity)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Groundwater (population)
Surface water (environment)

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (check one if high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH

(inspection required promptly)

☐ B. MEDIUM

(inspection required)

☐ C. LOW

(inspect on time available basis)

☐ D. NONE

(no further action needed - complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT

Carol Green

02 OF (Agency/Organization)

A.E. Staley Manufacturing

03 TELEPHONE NUMBER

1271421-2191

04 PERSON RESPONSIBLE FOR ASSESSMENT

Sheila Murphy

05 AGENCY

IEPA

06 ORGANIZATION

RPMS

07 TELEPHONE NUMBER

1271785-7402

08 DATE

7, 19, 90



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
IL D005104781

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply) <input checked="" type="checkbox"/> SOLID <input type="checkbox"/> POWDER/FINES <input type="checkbox"/> SLUDGE <input type="checkbox"/> OTHER <input type="checkbox"/> SLURRY <input type="checkbox"/> LIQUID <input type="checkbox"/> GAS	02 WASTE QUANTITY AT SITE (Measure of waste quantity must be independent) TONS CUBIC YARDS NO OF DRUMS approx. 40	03 WASTE CHARACTERISTICS (Check all that apply) <input checked="" type="checkbox"/> TOXIC <input type="checkbox"/> CORROSIVE <input type="checkbox"/> RADIOACTIVE <input type="checkbox"/> PERSISTENT <input type="checkbox"/> SOLUBLE <input type="checkbox"/> INFECTIOUS <input type="checkbox"/> FLAMMABLE <input type="checkbox"/> IRRITANT <input type="checkbox"/> HIGHLY VOLATILE <input type="checkbox"/> EXPLOSIVE <input type="checkbox"/> REACTIVE <input type="checkbox"/> INCOMPATIBLE <input type="checkbox"/> NOT APPLICABLE
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III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	unknown		
IOC	INORGANIC CHEMICALS			
ACD	ACIDS	unknown		
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/ DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Neodol	unknown	Landfilled in drums	unknown	unknown
OCC	2-ethylhexanol	"			
ACD	Acetic Acid	64-19-7			
OCC	Ethylene Glycol	unknown			
OCC	Caustic Potash	"			
OCC	Sodium Acetate Anhydrous	"			
ACD	toluenesulfonic Acid	"			
OCC	Isopar (purified Kerosene)	"			
	Possibly:				
OCC	Butanol	"			
OCC	Propylene Oxide	75-56-9			
OCC	Perchloroethylene	unknown			
OCC	Acetone	"			
OCC	Sodium Hydroxide	1310-73-2			
ACD	Sulfuric Acid	7664-93-9			
ACD	Hydrochloric Acid	7647-01-0			

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references e.g. State and bottom analysis reports)

IEPA Land Files (FDS and Compliance)



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

IL D005104781

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A GROUNDWATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED 2600

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☒ POTENTIAL

☐ ALLEGED

Due to the burial of $\approx 2,000$ gallons of questionable waste there is a potential for groundwater contamination.

01 ☐ B SURFACE WATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED unknown

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

This site sits adjacent to a reservoir which has a small creek connecting it to Lake Decatur. Although the nearest point of surface water ^{intake} is >2 miles away, the potential for contamination exists. There is a potential of harm to aquatic life in Lake Decatur and to people who use it for recreation.

01 ☐ C CONTAMINATION OF AIR

03 POPULATION POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

None documented or observed.

01 ☐ D FIRE/EXPLOSIVE CONDITIONS

03 POPULATION POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

None documented or observed.

01 ☐ E DIRECT CONTACT

03 POPULATION POTENTIALLY AFFECTED 2600 employees

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

Although a fence keeps the public away, there is a potential for state employees to come in contact with what could be contaminated soil in the area of the landfill.

01 ☐ F CONTAMINATION OF SOIL

03 AREA POTENTIALLY AFFECTED 40 acres
(ACRES)

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

There may be contaminated soil in the area of the landfill.

01 ☐ G DRINKING WATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED 2,600

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

See "A" above

01 ☐ H WORKER EXPOSURE/INJURY

03 WORKERS POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

None documented or observed.

01 ☐ I POPULATION EXPOSURE/INJURY

03 POPULATION POTENTIALLY AFFECTED _____

02 ☐ OBSERVED (DATE _____)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

None documented or observed.



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

IL DC005104781

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

None documented or observed. On the reconnaissance visit there appeared to be vegetation growth on the landfill.

01 ☐ K. DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION (include names of species)

02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

None documented or observed.

01 ☐ L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

None documented or observed.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES
(leaks, ruptured drums, leaking drums)

02 ☐ OBSERVED (DATE _____) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED _____

04 NARRATIVE DESCRIPTION

There has been nothing documented or observed, however, the present condition of the drums is unknown & thus a potential for leakage.

01 ☐ N. DAMAGE TO OFF-SITE PROPERTY
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

None documented or observed.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

None documented or observed.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

State had permits for burial at the site.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

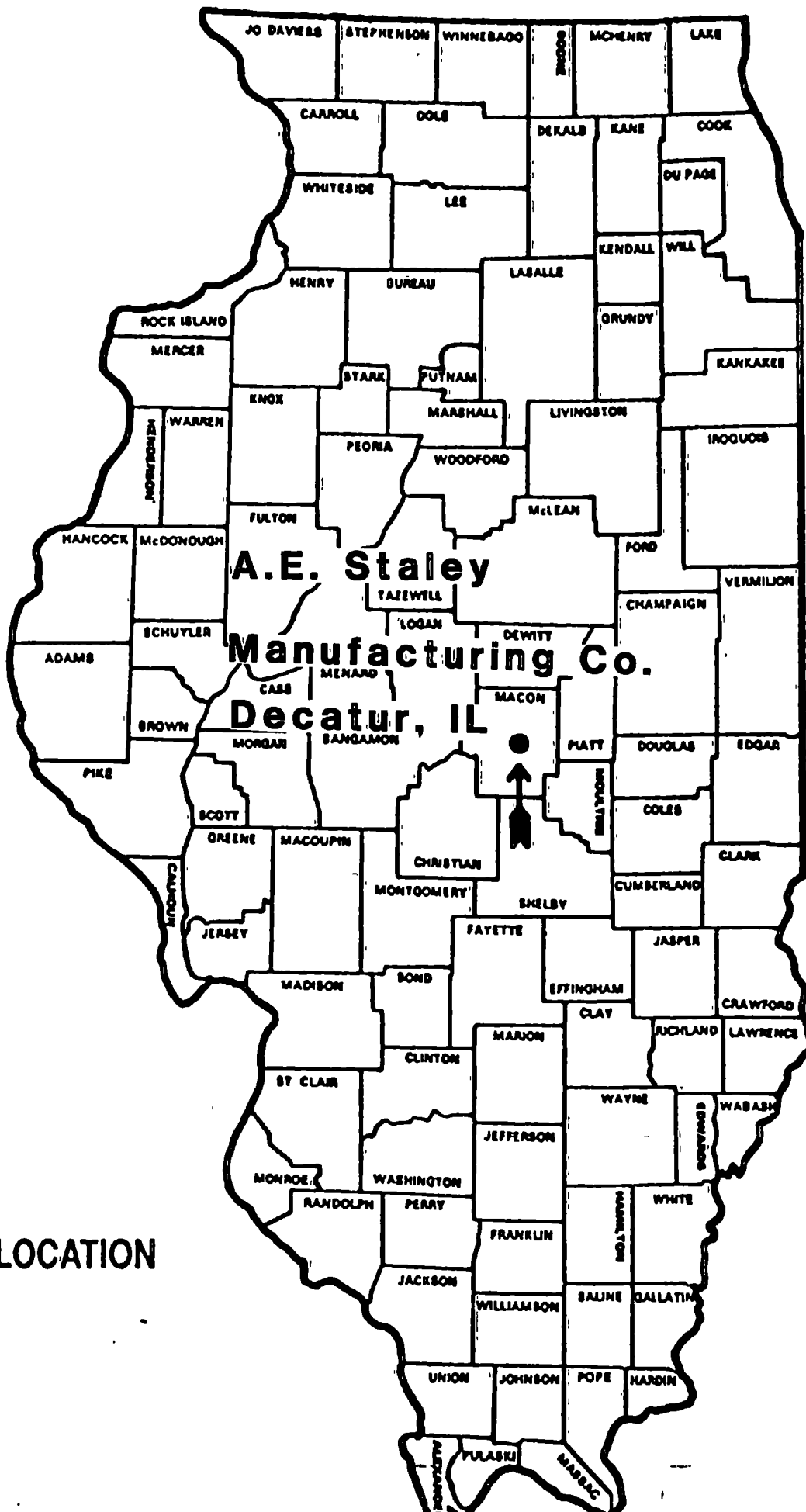
III. TOTAL POPULATION POTENTIALLY AFFECTED: 2,1000

IV. COMMENTS

V. SOURCES OF INFORMATION (Can specify references to site files, sample analysis, reports)

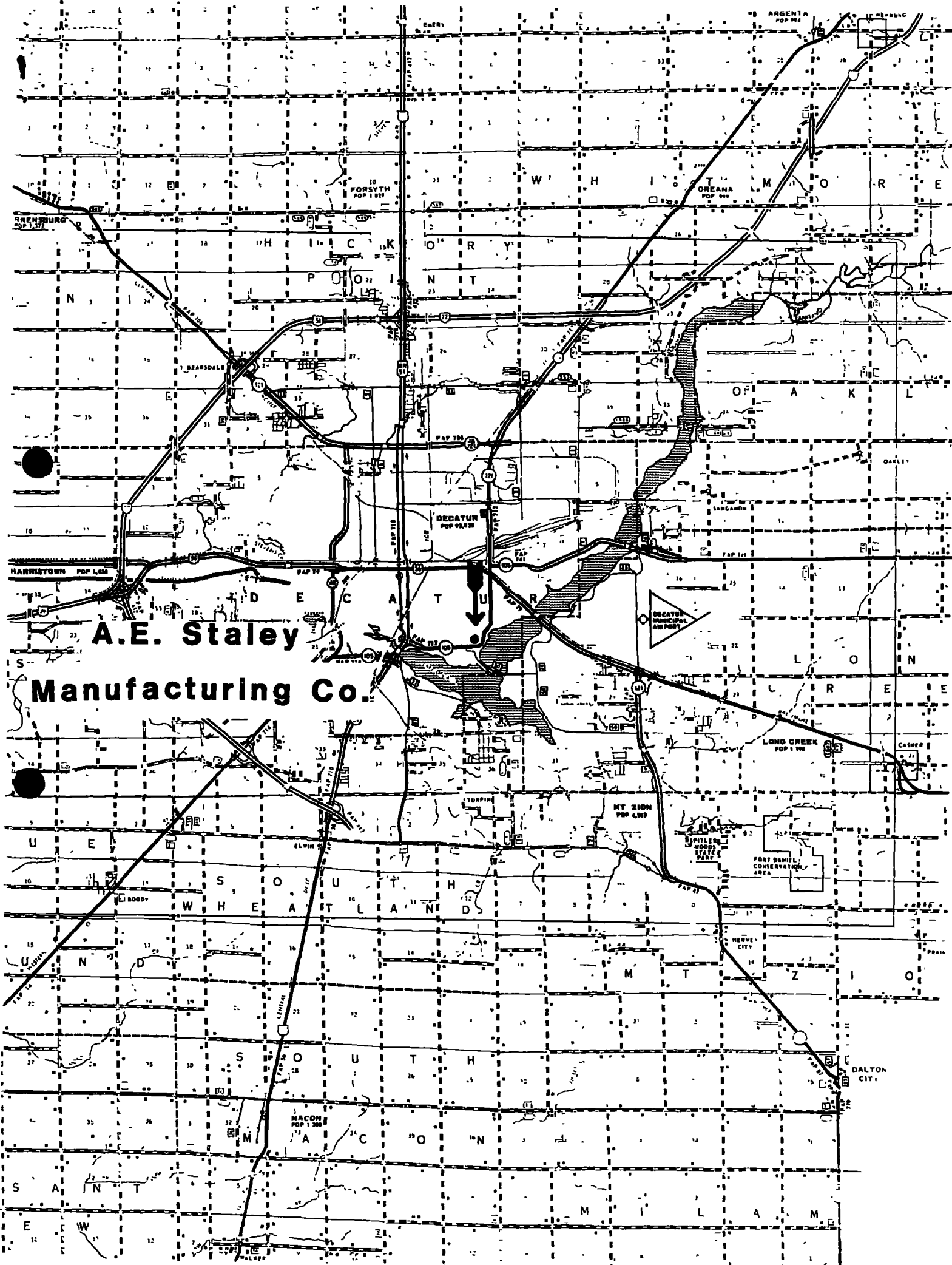
EPA Land Files (FOS, Compliance, RCRA)
ISWS
City of Decatur Municipal Service Center

ASCS aerial photos
USGS topographic maps



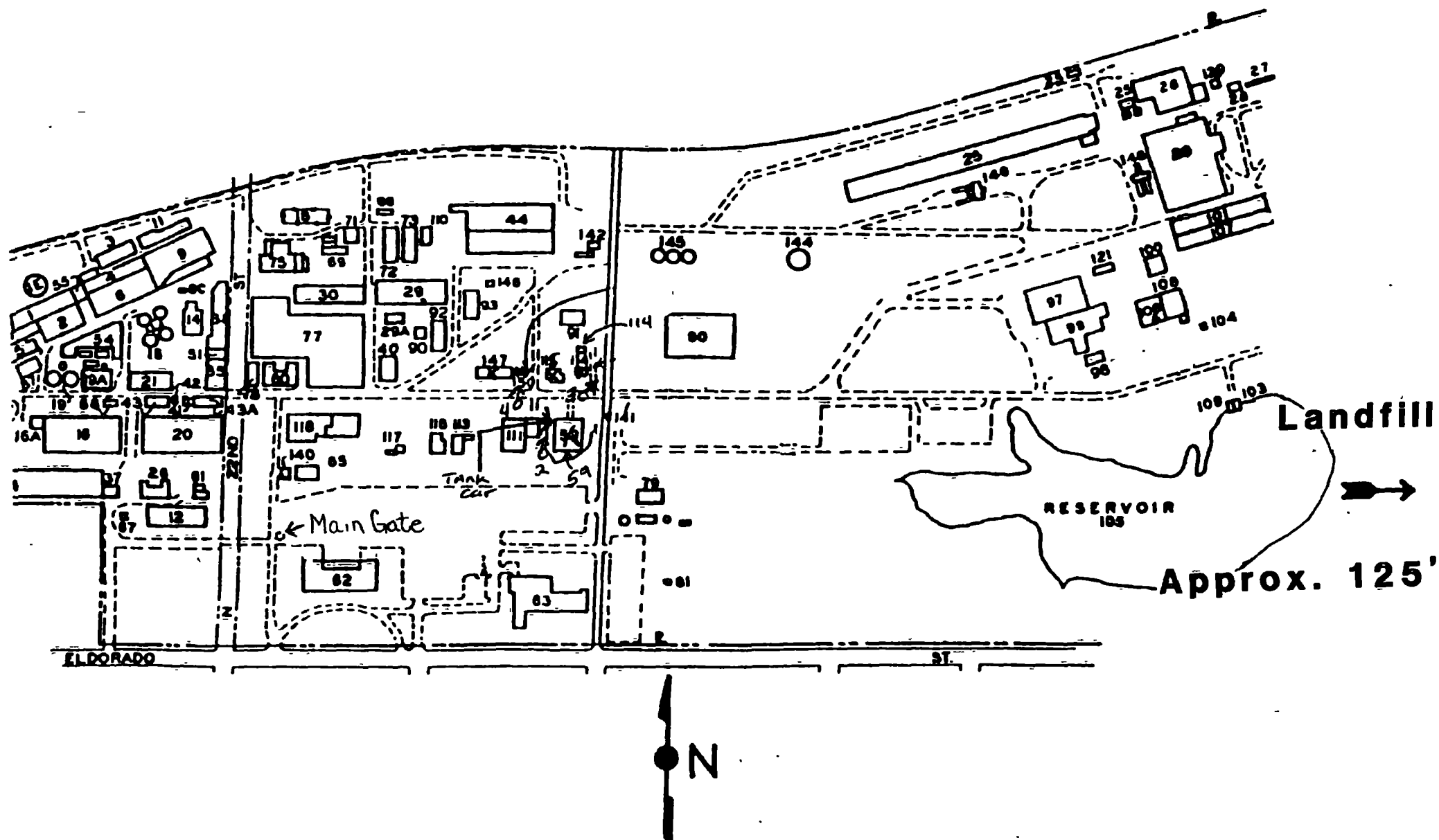
SITE LOCATION

A.E. Staley
Manufacturing Co.

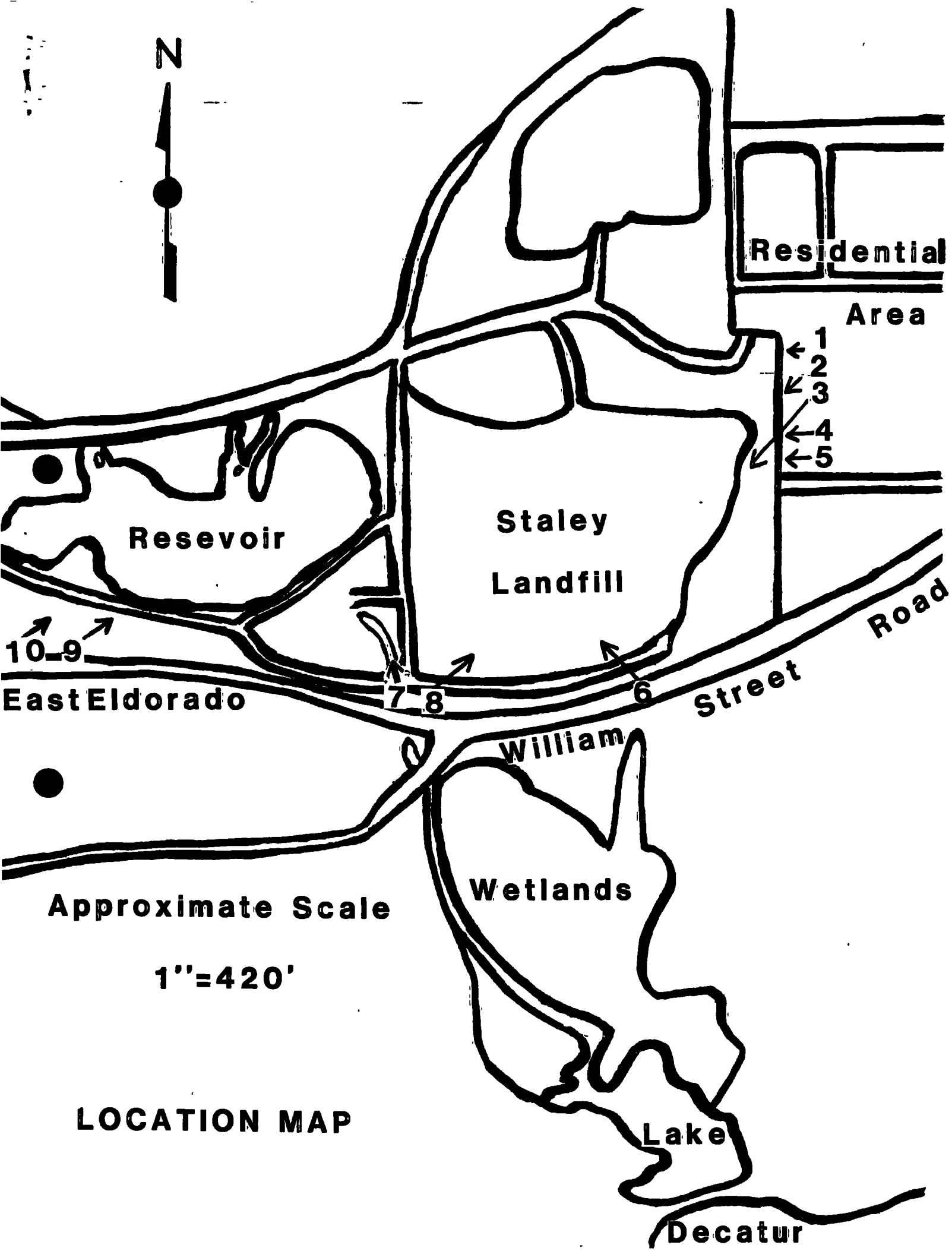


A.E. Staley Manufacturing Co.

Industrial Complex



● Not to Scale ●



DATE: June 29, 1990

TIME: 11:15 AM

Photograph by:

Tom Crause

Location: L1150150032
Macon Co.

A.E. Staley Manufacturing Co.

ILD 005104781

Comments: Picture taken toward

the west just outside
of Staley property.

Photo #

1



DATE: June 29, 1990

TIME: 11:15 AM

Photograph by:

Tom Crause

Location: L1150150032 Macon Co.

A.E. Staley Manufacturing Co.

ILD 005104781

Comments: Picture taken toward

Southwest, outside of
Staley property.

Photo #

2



DATE: June 29, 1990

TIME: 11:15 AM

Photograph by:

Tom Crause

Location: LI150150032 Macon Co.

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

Southwest, outside of

Staley property.

Photo #

3



DATE: June 29, 1990

TIME: 11:20 AM

Photograph by:

Sheila Murphy

Location: LI150150032 Macon Co.

A.E. Staley Manufacturing Co.

ILD005104781

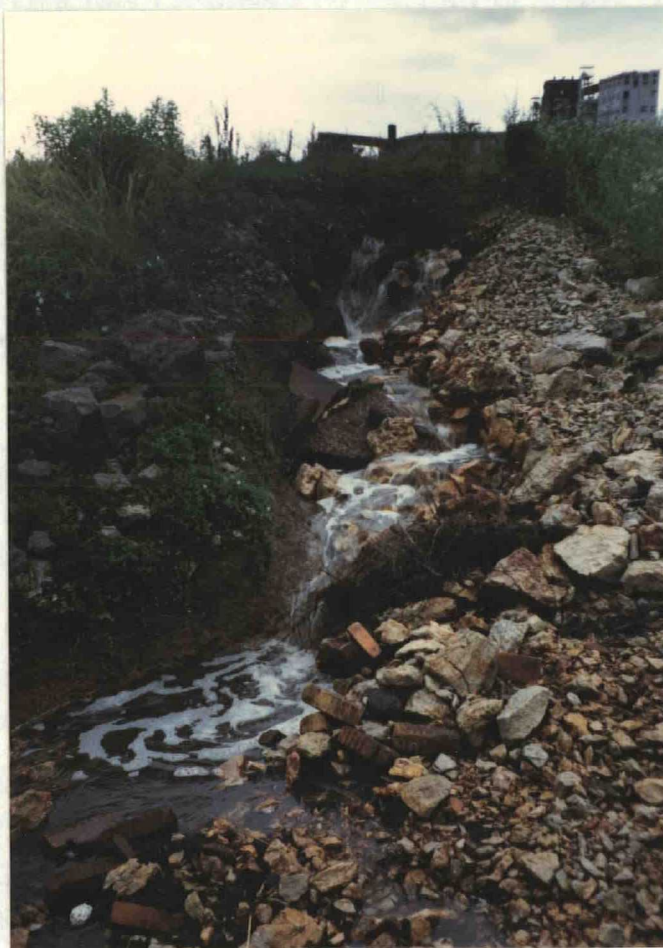
Comments: Picture taken toward

West, outside of Staley

property.

Photo #

4



DATE: June 29, 1990

TIME: 11:20 AM

Photograph by:

Sheila Murphy

Location: L1150150032 Macon Co

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

West, outside of Staley

property.

Photo #

5



DATE: June 29, 1990

TIME: 11:25 AM

Photograph by:

Sheila Murphy

Location: L1150150032

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

northwest.

Photo #

6



DATE: June 29, 1990

TIME: 11:25 AM

Photograph by:

Sheila Murphy

Location: L1150150032

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

northwest, just outside
of Staley Property.

Photo #

7



DATE: June 29, 1990

TIME: 11:25 AM

Photograph by:

Sheila Murphy

Location: L1150150032

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

northeast.

Photo #

8



DATE: June 29, 1990

TIME: 11:30 AM

Photograph by:

Sheila Murphy

Location: L115015032 Macon Co.

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

northeast

Photo #

9



DATE: June 29, 1990

TIME: 11:30 AM

Photograph by:

Sheila Murphy

Location: L115015032 Macon Co.

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

northeast

Photo #

10



DATE: June 29, 1990

TIME: 11:30 AM

Photograph by:

Sheila Murphy

Location: L115015032 Macon Co.

A.E. Staley Manufacturing Co.

ILD005104781

Comments: Picture taken toward

northeast.

Photo #

11



DATE: _____

TIME: _____

Photograph by:

Location: _____

Comments: Picture taken toward

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

MEMORANDUM

DATE: November 15, 1985

TO: Land Division File

FROM: ^{RJ} Richard Johnson, DLPC/FOS - Central Region

SUBJECT: LPC #1150150032 - MACON COUNTY - DECATUR/STALEY - ILD #005104781

RECEIVED
JAN 23 1986
IEP/CLPC

An Resource Conservation and Recovery Act (RCRA) inspection of the A. E. Staley plant in Decatur was conducted November 15, 1985. Met and interviewed during the inspection were Dr. William Hagenbach, Mr. Richard Dickinson, Mr. Richard Fiala and Mr. Robert Trent (see RCRA inspection report for job titles of the above).

The purpose of the inspection was to determine whether the facility was in compliance with the Subtitle G regulations of Title 35 Illinois Administrative Code and to obtain information concerning the recent landfilling of wastes at the plant.

The first item discussed with Staley personnel was the activity at their plant as described in my October 24, 1985 memo.

Mr. Fiala took the lead in answering questions about the types of waste disposed of on-site. He indicated that the wastes were generated from the plant's pilot project in Building 59. The pilot project was apparently designed to make a non-ionic surfactant that is totally biodegradable. He described the process of making the surfactant (in general terms) as mixing corn sugar with palm oil, reacting the mixture with butanol to get an intermediate, and then replacing the butanol with fatty alcohols (Neodol). Methanol was used in the process instead of butanol when the project began. Spent methanol was generated from the procedure. When they began using butanol the spent material was handled as a waste. They currently distill the spent butanol for further reuse in the process.

Mr. Fiala said wastes generated from the surfactant project had been accumulated on-site for possible recycling or reclamation. Staley personnel subsequently made the decision that they would not be able to reuse all of the waste as originally thought. Plans for the waste's disposal were then initiated.

Approximately 504 55-gallon drums of waste from the pilot project had been setting on-site for over a 2 year period, according to Staley personnel. It was indicated that the drums were sampled in August of 1983. Originally Staley had planned to have analyses done on all of the accumulated drums. They later realized how expensive and time consuming it would be. It then was decided to run an analyses of a composite sample. Test results of the sample is shown in Staley's January 8, 1986 correspondence. Three-quarters of the flash points taken of the composite samples (each drum on a pallet was composited) were below 140° F. It appears that the waste in the drums would be considered hazardous because of the ignitable characteristic indicated in Section 721.121.

RECEIVED
JAN 23 1986
IEPA-DLPC

According to Staley personnel, the first steps to dispose the drummed wastes occurred in the summer of 1985. The liquid in the drums was removed and placed in an on-site railroad tank car. Drums that were empty were steam cleaned. Approximately 296 out of the 504 drums were apparently steam cleaned. The clean drums were said to have been sent to the Acme Company in Chicago where they were reconditioned and then sold. Wash water from cleaning the drums was said to have been added to the liquid in the tank car. Heat was applied to the tank car to aid the separation of the water and waste phases. The separated aqueous phase was apparently discharged into a sump pit near the tank car. It was noted during the inspection that the tank car was located on the west side of Bldg. 59. A sump pit with a steel grate over the top of it was observed just south of the tank car. Staley personnel indicated that the pit is connected to their on-site wastewater treatment (WWT) facility. The wastewater discharges from the WWT facility into Decatur's sewer system. Tim Kluge of Water Pollution's Industrial Permit Section said that Staley doesn't have a pre-treatment permit through Water Pollution but that it apparently is not required to have one at this time.

Approximately 6000 gallons of waste was said to be left in the tank car after the aqueous phase had been eliminated (the tank car capacity was estimated to be about 8,000 gallons by Staley personnel). Staley is considering the possibility of using this waste in their boiler for a fuel. An analysis of the waste (see Staley letter dated January 8, 1986) indicates it has a heating value of 17,934 BTU per gallon.

It was stated that approximately 208 of the 504 drums had 2 to 8 inches of solid residue at the bottom that couldn't be removed. Staley believed that the residue was composed of fatty alcohols (Neodol), unreacted starch, glucosides, and dextrose. The waste was not believed to be hazardous. This determination was made through the facility's knowledge of the materials used in the process. Dr. Hagenbach figured that roughly about 2000 gallons of waste residue was left in the drums.

The residues in the drums (which were not analyzed) were landfilled in Staley's on-site landfill in September of 1985. We drove to the southeast corner of the plant where the landfill was located. All that could be seen of the approximate area where the drums had been buried was an elevated fill face.

I showed the Staley personnel the list of chemicals the union members presented me on the October 24, 1985 meeting (see Attachment G). The list was said to represent some of the chemicals that would be found in the drums. The following comments were made by the Staley personnel concerning the chemicals on the list:

RECEIVED

JAN 23 1986

EPA-DLPC

1. Neodol. This a trade name for the fatty alcohol used in making the non-ionic surfactant. A considerable amount of the residue in the drums was said to be composed of the solidified fatty alcohol.
2. Butanol. The use of butanol was explained previously in this memo. Waste in the tanker contains a minor amount of butanol, the residue left in the barrels shouldn't have any.
3. 2-ethyhexanol. Staley personnel were not sure whether this chemical was used in the surfactant project. No real information about this material was given.
4. Propylene oxide. This material was said to be used in one of Staley's research projects in which a reaction with starch and denatured alcohol occurs. The reacted starch is separated from the alcohol and the alcohol is distilled for further reuse. Propylene oxide shouldn't be found in the drummed wastes, according to Staley personnel.
5. Acetic acid. This is used to react with starch in one of their processes. The acetic acid becomes a part of the starch being made.
6. Ethylene glycol. This is used in refrigeration equipment as a coolant solution. No ethylene glycol waste was said to be generated.
7. Caustic potash. This was said to neutralize paratoluenesulfonic acid (pTSA) in a reaction involving butanol and sugar. any caustic potash would remain in the final product as a salt.

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8. Sodium acetate anhydrous. This was said to be used in lab quantities to adjust the pH of the final surfactant product. It would therefore be found in waste surfactant.
9. Toluenesulfonic acid (pTSA). This material is used as a catalyst in the reaction making the surfactant. To stop the reaction the caustic potash is added. The pTSA would be a constituent in any surfactant disposed of.
10. Perchloroethylene. This chemical is said to be no longer used. It had originally been employed to extract polar materials out of the surfactant. The decanted spent perchloroethylene was said to have been placed in 55-gallon drums. These drums (about 39 of them) had been shipped off to McKesson Chemical's recycling facility in November of 1984 (see Attachment A). None of these drums, according to Staley personnel, were added to the tank car.
11. Isopar. This is a kerosene-like material used to extract fatty alcohols out of the surfactant waste. Waste isopar had been placed in barrels. Most of it finally ended up in the railroad car.
12. Acetone. This is a common lab solvent. It was not said to be a part of any of the surfactant process reactions and was not believed to be in the drums.
13. Sodium Hydroxide. Not thought to be part of the surfactant development project. It is used to measure the amount of nitrogen in grain meal. According to Staley personnel, spent sodium hydroxide waste should not be found in the barrels.

14. Sulfuric acid. Not thought to be part of the surfactant development project. It is currently said to be used to analyze for COD in Staley's wastewater. No spent sulfuric acid should be in the drums, according to the Staley personnel.

15. Hydrochloric acid. Not thought to be part of the surfactant development project. It is currently used in processing corn syrup. There shouldn't be any spent hydrochloric acid in the drummed waste, according to Staley personnel.

From the information provided by the union and Staley, it is thought that the waste in the tank car and landfill probably doesn't contain a listed hazardous waste. Though the waste is hazardous (at least for ignitability), its use as a fuel in the boiler at Staley's would probably not be regulated under the Illinois regulations. This is because it appears to be exempt from the 725 regulation pursuant to beneficial reuse in 721.106(a). Air Pollution's Permit Section is looking into the situation and will determine whether Staley's air permit will be amended to allow this one-time burn.

An analysis of the waste in the drums that were landfilled will be requested. This should help establish whether the waste was hazardous.

RCJ/js

cc: DLPC/FOS, Central Region

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11501532
MACON CO.

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DECATUR/STALEY

JAN 08 1986



REFERENCE NUMBER 2

A.E. STALEY MANUFACTURING COMPANY 2200 E. ELDORADO STREET DECATUR, ILLINOIS 62521 TELEPHONE 217/423-4411

January 8, 1986

CERTIFIED MAIL

State of Illinois
Environmental Protection Agency
Field Operations Section
Division of Land Pollution Control
4500 South Sixth Street Road
Springfield, Illinois 62706

Attention: Richard C. Johnson
Environmental Protection Specialist

Reference: A. E. Staley Manufacturing Company
Hazardous Waste Generator Inspection
Inspection Date - November 15, 1985
Illinois EPA Identification Number 1150150032
USEPA Identification Number ILD005104781

Dear Mr. Johnson:

During your November 15, 1985 inspection of Staley's Decatur facility for compliance with hazardous waste (RCRA) regulations, you requested that Staley submit background information to your office concerning the handling, sampling, testing, and disposal of certain pilot plant recyclable materials generated during the development of a process to manufacture a starch-derived surfactant. In addition, you requested information on the disposition of PCB waste materials resulting from a release in 1981.

This letter is intended to answer your questions and concerns. Staley apologizes for its delay in responding. Chemical analysis of the hazardous waste fuel in the tank car was conducted after your inspection to assure your office that the tank car contents were composed of the same materials present in the drums prior to decanting. This analytical work plus thoroughly rechecking our facts with pilot plant employees associated with the surfactant project (spanning several years) caused the delay.

As you know, the materials buried in Staley's landfill (solids) and contained in the hazardous waste fuel tank car (liquids) were created from process sidestreams in Staley's starch-derived surfactant pilot plant process. In a commercial plant these materials would have been recovered within the process due to their inherent value. Instead, the material was placed in empty drums with the intent to reclaim it in the pilot plant facilities. Unfortunately, it eventually became apparent that reclaiming the materials would directly conflict with development of the surfactant process because of simultaneous demand for distillation capacity.

At that point, pilot plant personnel began to look at other opportunities including off-site reclamation, burning the material to recover its fuel value, or disposal if on-site reclamation at the pilot plant proved impossible. Drum samples were obtained in August 1983 to ascertain the status of the drummed material according to RCRA. The material was not a "listed waste" or spent solvent; therefore, the materials were tested for the characteristic of ignitability.

Each drum was sampled utilizing a homemade sampler (see Sketch 1) which was designed to give a representative sample throughout the liquid depth. After sampling, the drums were inspected for leaks, restenciled, and entered into a ledger. Originally, Staley had planned to analyze each sample; however, the cost of this was found to be very high and a composite analysis was determined to be satisfactory. A composite sample from each pallet was made from the four drums which made up each pallet. The pallets were numbered for future reference. Flash point determinations revealed that approximately three-fourths of the drums inventoried had flash points less than 140°F making the materials ignitable under RCRA regulations.

Following further study, it was decided in the spring of 1984 that the best and most economical method of disposal was to recover the 504 drums of recyclable materials for fuel. This was done over the summer by pumping the free liquids from the drums into a railroad tank car. After the material was in the rail car, heat was applied to the car by way of a heating coil. The heat caused the material in the tank car to phase split, enabling the water to be drained off the bottom at a predetermined rate to our wastewater pretreatment facility. The drums that were pumped empty into the rail car were steamed and returned for deposit. These steamed drums totaled 296 in all. The remaining 208 drums were pumped free of liquids, leaving some solid material (fatty alcohols, unreacted starch and surfactants) in them. Prior to execution of the above procedure, approximately 50 drums were sampled as previously described and combined into a composite. Analysis of the material revealed the following:

Fatty Alcohols (C ₉₋₁₃)	33.6 %
Isopar G (purified kerosene)	13.45
Methanol	1.71
Butanol	.31
H ₂ O	40.3
Starch and Surfactant (by difference)	<u>10.63</u>
	100.0 %

Actual laboratory analytical data sheets are included in Attachment I.

The solid residual material in the remaining 208 drums was presumed to have flash points much greater than 140°F since it consisted of starch solids, surfactant solids, and high flash point (>250°F) fatty alcohols. As you are aware, solid materials are not amenable to flash point determinations as currently specified. Summer temperatures should have sufficiently liquefied the lower flash point alcohols and kerosene which would then have been pumped to the tank car. On-site disposal of the nearly empty drums was determined to be the most efficient disposal method. Staley was in the process of closing its landfill in September of 1985 and there was sufficient room in the remaining cell to allow disposal of the drums. A disposal area in the cell was prepared for the drums which consisted of compacted clay (floor, sides, a berm, and cap) to retard drum corrosion.

Analytical results from Gabriel Laboratories (see Attachment II) showed the hazardous waste fuel in the tank car to be suitable for burning in Staley's boilers (similar to #2 fuel oil but with a lower flash point). Chemical analyses recently completed reveal the materials in the tank car are the same alcohols and kerosene as in the drums. Results are as follows:

Analytical Results from Tank Car After Phase Split

Butanol	3.62%
Methanol	.68%
Isopar G	40.6%
Fatty Alcohols	43.6%
Karl Fischer Moisture	1.9%
Starch and Surfactant (by difference)	9.6%
SO ₄	0.33%
Free SO ₄	.002%
Viscosity @ 122°F	3.53 c ST
Flash Point, Pensky-Martens	75°F
Heating Value - Btu/Lb	17,934

Actual laboratory analytical data sheets are included in Attachment II.

Mr. Richard C. Johnson
Page Four
January 8, 1986

As we discussed during your inspection, Staley believes that burning a waste fuel in a boiler that exhibits the characteristic of ignitability is not presently regulated in any way under RCRA, even though it is technically a hazardous waste. Therefore, Staley plans to begin burning the waste to recover its fuel value starting the week of January 13, 1986. The tank car will be relocated and tied into the existing #6 oil feed line leading to #25 boiler. The natural gas burners will operate simultaneously to ensure ignition. Barring any unforeseen problems, the contents of the tank car should be totally burned in one or two days. Staley continues to believe this is the most sound disposal method from an environmental and economic standpoint.

In response to your request for documentation and substantiation that Staley properly disposed of PCB wastes resulting from the 1981 cleanup of a PCB transformer release in 44 Building of our Decatur plant, manifests and a destruction certification provided by the owners of the ENSCO incinerator in Arkansas are included (Attachment III).

Staley trusts that you will agree that although final deposition of the materials generated from the pilot plant surfactant process took considerable time, decisions were made in an environmentally rational manner and consistent with regulatory requirements. If you require any additional information we will endeavor to provide it.

Sincerely yours,

A. E. STALEY MANUFACTURING COMPANY

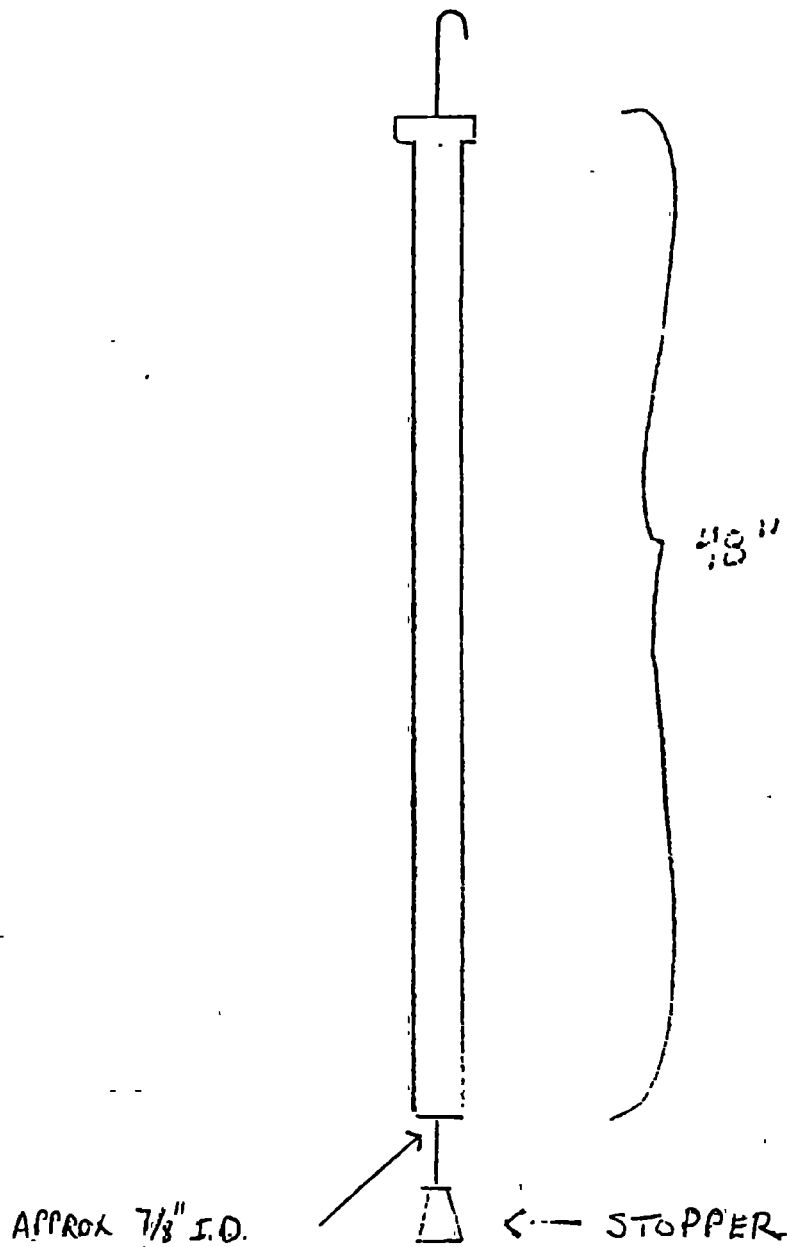


W. P. Hagenbach
Director of Environmental Sciences
and Safety

RLD/jb

Attachments

THIS UNIT WAS DESIGNED TO MAKE SURE A REPRESENTATIVE SAMPLE COULD BE TAKEN FROM A 55 GALLON DRUM EVEN IF A PHASE SPLIT HAD OCCURRED. THE UNIT WAS INSERTED INTO THE DRUM ALL THE WAY TO THE BOTTOM THEN THE STOPPER WAS PULLED UP TO PLUG OFF THE END OF THE PIPE.



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JUN 10 1985

TECH. UNIT

Attachment I

Analytical Data Sheets
for
Composite Sample of Drummed Materials

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JAN 04 1960

Rev. 8/83

ANALYSIS REQUEST
(Submit Original & Carbon)

PROJECT NUMBER F-21-112

TO: #63 BUILDING

LOGBOOK NUMBER 6-825

☐ M-115 Microbiology & Physical Testing

Chromatography Labs M-128

☐ M-142 Chemical Analysis & Spectroscopy

☐ LC

GC

☐ GC/MS

Submitted By Kandy D. Tarn

Phone Ext. 2535

Date 4/24/85

Analysis Requested

Sample Type, Expected Levels, Hazards, Special Instructions, Method Number, Etc.

<input type="checkbox"/> Priority Samples-	Desired Completion Date	Time
--	-------------------------	------

☐ Refrigerate Samples ☐ Limited Sample Available, Please Forward To

Lab For Additional Analysis

☐ Analyst's Remarks on Back

"analysis"

[illegible]

ANALYST	4/1						
DATE	5-3-83						
NAL. METHOD NO. OR RESEARCH NOTEBOOK	2)						

[illegible]

1279657

MPA X. E. STALEY MANUFACTURING COMPANY
DECATUR, ILLINOIS FACILITY
SOLID WASTE LANDFILL CLOSURE

State of Illinois I Hereby
Macon County SS Certify
That This Instrument Was Filed For
Record At 11:50 AM
On _____ And

AUG - 7 1989

Site Address: 2200 East Eldorado Street
Decatur, Illinois 62525

Recorded in Book 2318 Page 754

Description of Site: Attached

Edmund J. P. Young Jr.
Fee 9.00 pd Recorder of Deeds

Date of Operation: Early 1950's - November, 1984

Wastes Handled: General plant and office trash, wood pallets, concrete, tile and floor sweepings. Process wastes including starch, feed, humin press cake, and filteraid.

Closure: This landfill was not required to have a permit pursuant to Section 21 (d) of the Act; therefore, a formal closure plan was not required.

The site was closed in a manner which minimized the need for further maintenance. The closure method was designed to control, minimize, or eliminate post-closure release of waste, waste constituents, leachate, contaminated rainfall, or waste decomposition products to the groundwater or surface waters or to the atmosphere to the extent necessary to prevent threats to human health or the environment.

Specifically, all portions of the landfill utilized for waste disposal received a minimum cover of two feet of compacted earth. In addition, the landfill area was contoured to prevent soil erosion and adequate drainage patterns were developed to prevent standing water or leachate problems. The ground was seeded and presently has vegetation over approximately 80% of its total area.

Ongoing Activities:

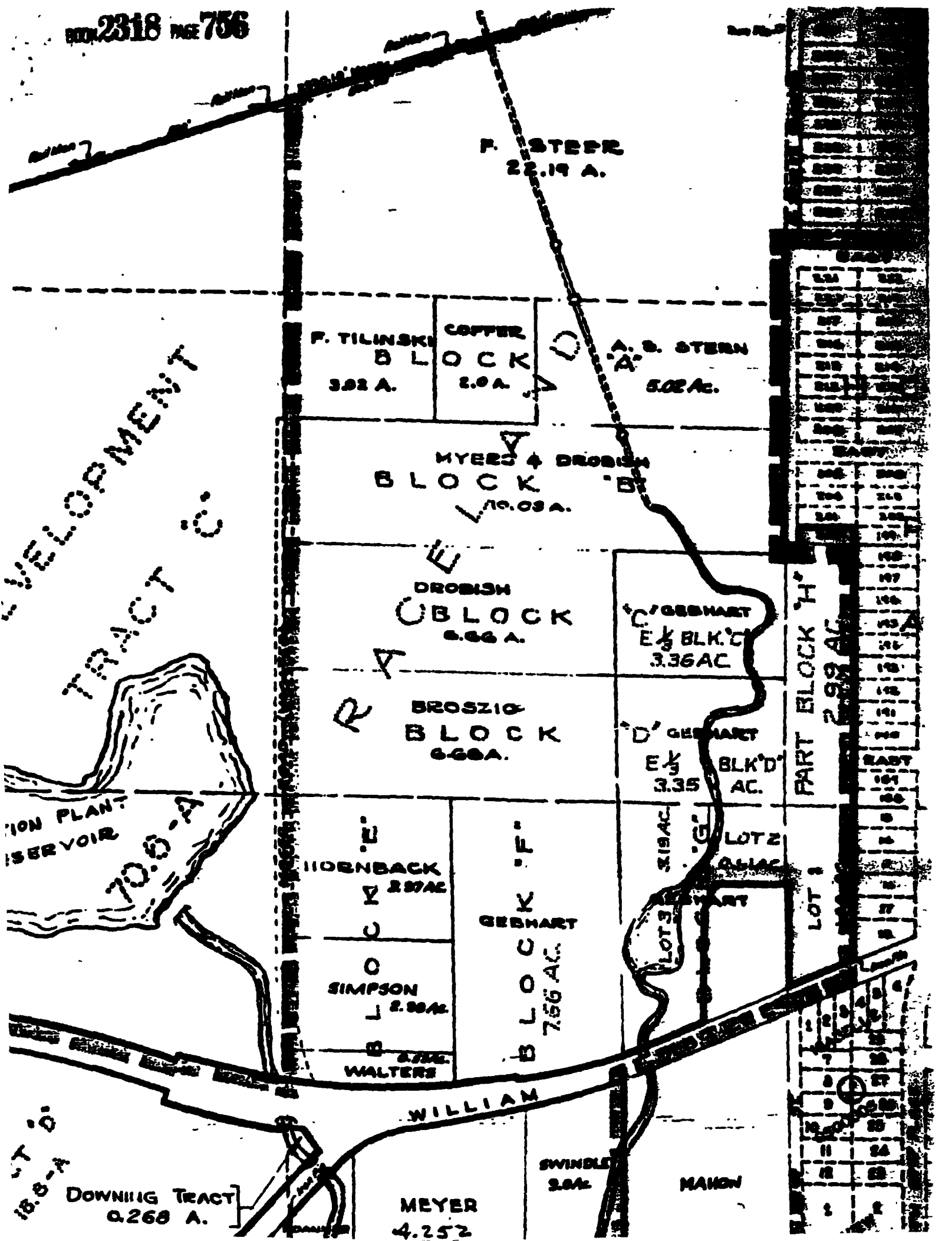
Weekly inspections of the landfill are completed to ensure that remedial maintenance work is carried out when needed. In addition to looking for uneven settling or signs of leachate, landfill odors are also noted. Explosion meters are used when necessary to pinpoint the exact location of decomposition gas releases and hasten remedial actions to seal the leak.

Weekly samples from the drainage ditch parallel to the landfill (which would collect runoff from the landfill) are collected and analyzed for BOD, suspended solids, pH, appearance and odor. Changes in any of the runoff parameters are reported to the responsible personnel.

DESCRIPTION

A tract of land situated in and being a part of the SE 1/4, SW 1/4, Section 7, T16N, R3E of the 3rd PM, the NE 1/4, NW 1/4, and part of the NW 1/4, NE 1/4, Section 18, T16N, R3E, of the 3rd PM, all lying North of Illinois Route 105 (E. William Street Road) and being more particularly described as follows:

All of Blocks C, D, E, F and all that part of Block H in Raceland Addition as per plat recorded in Book 335, Page 127 and lying West of Homewood Place Addition as per plat recorded in Book 300, Page 116. Also all of lots 1, 2 and 3 of the Resurvey of Block G of said Raceland Addition as per plat recorded in Book 683, Page 247 of the records in the Recorder's Office of Macon County, Illinois and containing in all 43.33 acres more or less.



F. STEER
22.19 A.

F. TILINSKI
BLOCK
3.82 A.

COPPER
BLOCK
2.0 A.

A. B. STERN
"A"
5.02 AC.

MYERS & DROBISH
BLOCK
10.03 A.

DROBISH
BLOCK
6.62 A.

BROZIO
BLOCK
6.68 A.

GEBHART
EX 1/3 BLK. C
3.36 AC.

GEBHART
EX 1/3 BLK. D
3.35 AC.

LOTZ
2.11 AC.

HORNBACK
2.97 AC.

SIMPSON
2.80 AC.

WALTERS
2.72 AC.

GEBHART
BLOCK
7.56 AC.

WILLIAM

MEYER
4.252

SWINDLE
2.8 AC.

MAHON

DOWNING TRACT
Q.268 A.

DEVELOPMENT
TRACT C

ION PLANT
SERVOIR

16.8-4



ASCS Aerial Map 1972

1"=660'



JUL 2 1990

IEPA/DLPC

**A.E. STALEY MANUFACTURING COMPANY — SUMMARY REPORT**

The A.E. Staley Manufacturing Company is a leading agribusiness company, ranking as the second largest corn refiner in the United States. Its corn processing capacity exceeds 450,000 bushels per day.

The company is a prominent supplier of sweeteners, starches, ethanol, animal feeds, food ingredients and corn oil, all traditionally marketed as high-quality, cost-effective products.

Four major corn wet milling plants are located at: Decatur, Illinois; Lafayette, Indiana (two facilities); and Loudon, Tennessee.

Corporate headquarters, a research and development center, and the largest production facility are located within a 151-building, 400-acre complex in Decatur, Illinois. Current annual sales volume exceeds \$1 billion. Total employment is approximately 2600 people.

The Sweetener Group manufactures a variety of nutritive sweeteners used by processed food manufacturers, and fuel ethanol which is used as an octane enhancer and oxygenate in gasoline. The mainstay of the product line is high fructose corn syrup (HFCS), a replacement for sugar in every major soft drink. Staley's newest sweetener product is KRYSTAR crystalline fructose which, like Staley's dextrose and regular conversion syrups, finds application in many foods and beverages. Sweeteners are manufactured at all four major processing plants.

The Starch and Specialty Products Group manufactures more than 350 products based on dent and waxy corn, potato and tapioca starches. As a food ingredient with many applications, starches add texture and body to products such as desserts, gravies, soups and sauces. In the paper industry, Staley is a leading supplier of starches and dextrans used as surface sizes and bonding materials. Other products include maltodextrins, corn syrup solids, corn bran and soy based products, primarily for the food market; and water soluble polymers for special industrial markets. Starches and specialty products are manufactured at eight production facilities located throughout the U.S.: Decatur, Illinois; Lafayette, Indiana; Monte Vista, Colorado; Stanfield, Oregon; Murtaugh, Idaho; Houlton, Maine; Galesburg, Illinois; and Van Buren, Arkansas.

The Commodities Group procures corn for processing in Staley's plants, and merchandises the co-products derived from this processing. These products include corn gluten feed, corn gluten meal and corn oil. Corn gluten feed and meal are sold as animal feeds. Refined salad and cooking oils, naturally low in saturated fats, are marketed along with margarine and specially hydrogenated oils to customers such as snack food companies and fast food restaurants. Staley oils are cholesterol-free. The group also operates a country elevator subsidiary, Staley Grain, Inc., and the corporate transportation division.

Internationally, Staley has business activities in a number of other countries including Canada, Mexico, Chile and Thailand. In addition, Staley is also involved with affiliates in Korea, China, Argentina, England, Belgium, Spain, Greece, Malaysia and Holland.

Consistently a leader in the corn refining industry, Staley is strongly committed to new product innovation through an extensive research and development program. Staley played a key role in the development of high fructose corn syrup in 1972, and broke new ground in 1986 with the introduction of KRYSTAR, a crystalline fructose product.

Augustus Eugene Staley, Sr. founded the business in 1898, packing and selling "Cream" corn starch from a rented loft in Baltimore, Maryland. Incorporated in 1906, the company located in Decatur, Illinois in 1909 and began corn processing in 1912.

Outside the business environment, Staley is best known in its early history for hiring George Halas to organize a football team, the "Decatur Staleys", who eventually became the Chicago Bears. Four Decatur Staleys, including George Halas, are in the NFL Football Hall of Fame.

In June 1988, Staley was acquired by a British firm, Tate & Lyle, PLC. As a member of the Tate & Lyle Group, Staley now enjoys association with one of the world's leading sugar, cereal sweetener and starch groups.

TELEPHONE CONVERSATION RECORD

Macon

COUNTY

LPC

DIVISION

ILD005104781

Decatur

/ A.E. Stoley

I. D. or FILE NO.

Re: Decatur's Public Water Supply

Conversation with: Paul McChancey, Chief Planner

(☒) I Called Party () Party Called Me DATE 6/28/90 TIME 10:25

() Complainant () Violator (☒) Public Inquiry () Partitioner

What I Said:

Hello. This is Sheila Murphy
from the Illinois EPA. I
was wondering if you might
have some time tomorrow so
I could come by and talk
with you.

I need to find out the boundaries
of where the city supplies water
and I am questioning one
particular point of water
intake.

What Other Party Said:

What sort of information
are you looking for?

Well, I really don't think
I am going to be of much
help. I have air photos
and maps but I work
mainly outside of the city
boundaries. However there are
a couple of numbers I can
use reverse side if necessary

Sheila S. Murphy
Signature

Assistant Environmental
Title Protectionist

REFERENCE NUMBER

This image shows a single sheet of white paper with horizontal black ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be from a notebook or a set of legal pads. There is no handwriting or other markings on the page.

Comments

Referred to:

Unit

Copies to: () File

Recommendations

Signature

What I Said:

What Other Party Said:

Thank you for the information. It will certainly help.

OK. Thanks Again.

include about a half dozen home owners, Harris-town, Long Creek Township system and I'm not positive, but maybe Forsyth.

Let me know if there is anything else you need.

Comments

Referred to:

Unit

Copies to: () File

Recommendations

Signature

Philip L. Murphy

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

TELEPHONE CONVERSATION RECORD

COUNTY

DIVISION

I. D. or FILE NO.

Re:

Conversation with:

() I Called Party () Party Called Me DATE / / TIME :

() Complainant () Violator () Public Inquiry () Partitioner

What I Said:

What Other Party Said:

give you. There is the
Director of Water Dept. for
the city of Decatur. That
number is 424-2834. The
other number is for Public
Works. Talk to Bill Sands
and he can be reached at
424-2747. He may not
have any thing to do with
the actual layout, but
could probably get you
some maps pretty fast.
I do know that the city
services the village of Mt.
Zion & Pittsburgh Plate
Glass Plant & there are
emergency agreements
with a few areas. These
use reverse side if necessary

Signature

Title